crossing pattern creates a flow resistance to said respective fluid medium flowing over said respective side of said planar element such that a resistance to flow of each fluid medium is greater in said lengthwise direction of said heat transfer package than said widthwise direction, thereby increasing flow turbulence and heat transfer.

REMARKS

The Examiner rejected Claim 5 under 35 U.S.C. § 112, first paragraph. The Examiner noted that the specification lacks an adequate written description of the invention with respect to the angle of the corrugations and resulting flow resistance. Applicant respectfully directs the Examiner's attention to Page 7, lines 8-10, of the specification, as well as Figures 2 and 3. The specification discusses how an efficient spread of the flow is desirable and how, when corrugations are made at an angle of 45 degrees or more with respect to the longitudinal extension of the sheet, this can be obtained. The specified angle of the corrugations in the present claims creates a flow situation where each particle of flowing fluid changes direction transversely in a manner which leads to an optimal balance between the increased residence time in the heat exchanger and the resulting pressure drop. The practical effect is to reduce concentrated hot regions in the exchanger, and to expose the counter-flowing fluids to each other in a manner which optimizes the heat transfer between them.

The Examiner rejected Claim 5 under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicant has amended Claim 5, eliminating the objectionable language.

The Examiner rejected Claim 5 under 35 U.S.C. § 103(a) as being unpatentable over *Davis* in view of *Hultgren*. These references are directed to gas flow, and are intended to address problems which are peculiar to gas flow, and not fluid flow in general. Consequently, if one skilled in the art would nevertheless consider this art relevant, he would find it teaching away from the present, non-obvious invention. *Hultgren* states that wave-shaped corrugations have no effect with regard to heat exchange between gaseous mediums (Column 1, lines 15-22). *Hultgren* also states that turbulence must not be created

(Column 1, lines 40-42). The wave-shaped corrugation pattern in the present, non-obvious invention, however, has as its object, promoting turbulence (Page 7, lines 11-16) and lateral dispersion of the flow (Page 7, lines 1-10). *Hultgren* teaches that efficient gaseous medium heat exchange occurs at the upper edge of laminar flow and that if turbulence occurs, efficiency drops rapidly. Also, *Hultgren* suggests minimal corrugations which are set at 5-20 degrees to the direction of flow (Col. 3, lines 3-9) to prevent turbulence and minimize pressure drop. Contrarily, the present non-obvious invention uses wave-shaped corrugations to induce turbulence and sets them at an angle greater than 45° to the direction of flow to maximize lateral dispersion which maximizes utilization of the heat exchange surface area, thereby maximizing heat exchange transfer (Page 7, lines 3-16). Therefore, it would not be obvious for one skilled in the art to utilize the stated references, and even if one did, they would not have arrived at the present, unobvious invention, as those references teach away from the present, non-obvious invention.

Applicant asserts that all of the objections have been obviated, and therefore now respectfully requests withdrawal of the objections and allowance of the application.

REQUEST FOR EXTENSION OF THE TERM

Applicant respectfully requests an extension of the normal term which expired January 27, 2000, for three months, to April 27, 2000.

Submitted herewith is a check for $870 to cover the cost of the extension.

Any deficiency or overpayment should be charged or credited to Deposit Account No. 04-2219, referencing our Docket No. C35620.

Respectfully submitted,

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D. C. 20231, on April 17, 2000.

Patricia A. Mohr

Patricia A. Mohr

ADB/pam